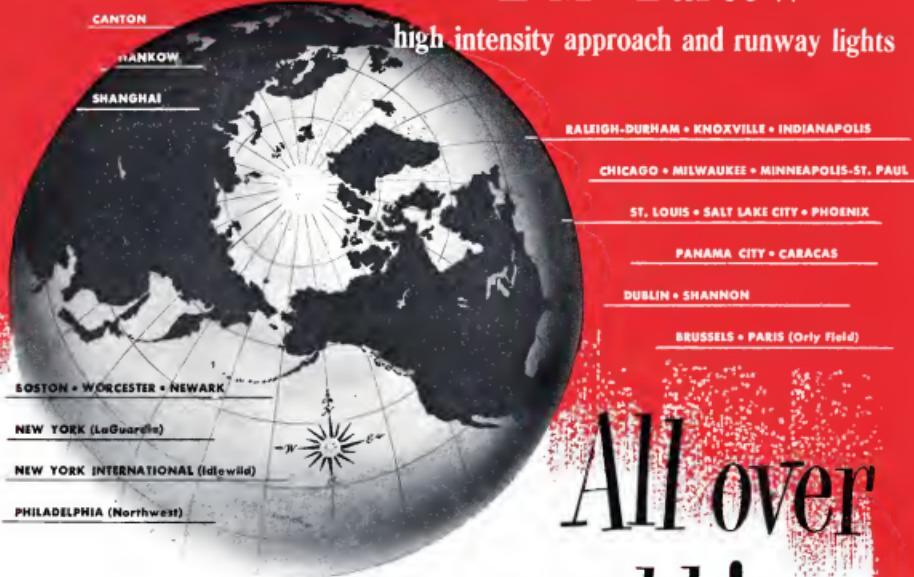


AVIATION WEEK

A McGRAW-HILL PUBLICATION

OCT. 25, 1948

L-M-Bartow



All over
the world!

L-M-Bartow pioneered high intensity lighting, and is today's leader both in quality and number of installations. The list shows some recent users of L-M-Bartow high intensity systems. Only the fully controllable beam permits the very high controlled intensities, up to 180,000 beam candlepower. This gives maximum penetration, *without glare*, reaching out further to "bring 'em in alive" when every foot of distance counts. For information on this and other engineered lighting for all sizes of airports wire or write Airport Lighting Division, Line Material Co., East Stroudsburg, Pennsylvania.



LINE MATERIAL Airport Lighting



AIRCRAFT BALLASTS

for the "lost word" in fluorescent lighting

The newest in decorative lighting today is the 12-inch, 32-watt ornate lamp. Thanks to new General Electric 400-type halogen, this lamp and other recently developed fluorescents can now be dimmed (in series)—with assurance of full rated life and full light control.

Compact, light, and reliable, G II ballasts cover all transformer requirements for all craft fluorescent lighting. They are available in high power factor designs for one, two or more lamps—from 6 to 50 watts. Where space

and weight are particularly important, a small west-pocket set ballast of the one and one-half type, uncorrected power factor, is available—with weights of only 8½ to 4½ ounces.

General Electric newbulletin, GEA-4866, lists various standard aircraft ballasts and also other G-E aircraft transformers. You should keep this catalog in your files. For a copy, and for assistance with any aircraft transformer problem, get in touch with your G-E sales office or write *Apparatus Dept., General Electric Company (Aircraft) 3 N.Y.*

GENERAL  ELECTRIC

Transformers for Aircraft

- All Survival Electronics aircraft transmitters are designed to
 - Operate dependably at altitudes up to 30,000 feet
 - Operate in ambient temperatures from -70°C to 110°C
 - Utilize narrow frequency bandwidths to prevent interference
 - Utilize redundant check
 - Utilize redundant logic to minimize



He's giving orders for an engine fire!

He deliberately sets plane engines adrift.

From the cockpit section of our pulled-apart B-36, he pushes the switch that makes flames roar out from the aft engine of a tandem power-plant arrangement. Meanwhile the blast of the front engine's propeller simulates the discharges of harbored bolts.

Then, at the touch of a control handle, he smother the blaze as the extinguishing system goes into action!

At the Kukla growing grounds, we've restored more than 600 acres like that—under conditions that reproduce annual flight. We've set more than 1300 additional trees in engine

endings. We've held stop-sutures in those trees dead—killed by a blast of carbon dioxide (CO_2) or methyl bromide. Or perhaps the extinguishing agent was monochlorobutane (CH_3Cl), dichloroethane ($CHCl_2$), or one of the Freons. We've put them all to the test.

It's all part of the continuing progress of table research directed toward greater safety and health. Through studies like this, we have collected a fund of information unmatched by any other private organization—information which is always at the disposal of government agencies, aircraft manufacturers and press-agency companies.



The words "Kodak" and the Kodak and are trade marks of Webster Kodak & Company, Inc.

Kidde

Walter Kidde & Company, Inc., 1018 Moline St., Belleville 9, N. J.



CONTINENTAL AIRLINES IMMEDIATELY CONSIDERED THE **WRIGHT** 320's. Five of these new 40-passenger Consolidated Connies 210's are scheduled to go into operation this fall. Ships offer economy at extremely low speeds, which gives drivers more time, higher speeds, and better engine cooling. Each of the new aircraft has two 1,500-hp Pratt & Whitney R-9850 R-1 Cobras, with a compound engine as a primary, with up to 1,520 hp of jet thrust at 8,000 ft. Cobras were second-motorized Continental Airlines were Texaco Aviation, Texaco Oil and other Texaco lubricants exclusively. See them in the P-1 press!

EDWARD F. KEE, President, has handled Curtis-Ledgestone's business in the U.S. for 20 years. He estimates that 27 cities in the Western states, with 15,000 passengers a month, and has one of aviation's most outstanding safety records.



CONFIDENCE

... looms big behind
the use of Texaco Aviation Products
and Lubrication Engineering Service

MANY revenue airline routes in the United States are flown with Texaco directly. Begin! Do they work with any other brand? There. In just twenty words, you have the story of airline confidence in Texaco.

Nowhere is dependability more important than on aviation... dependability of quality in lubricants and fuels... dependability of delivery... dependability of service. Texaco is available in every corner.

Operators using Texaco will tell you, also, that their

is real economy in the use of Texaco Aviation Products and Lubrication Engineering Service... the economy that comes from more trouble-free operations and reduced maintenance costs.

Learn how Texaco can help you increase efficiency and economy. Just tell the result of the more than 2,000 Texaco Wholesale Distributing Points in the 48 States, or write The Texaco Company, Aviation Division, 155 East 42nd Street, New York 17, N. Y.



TEXACO Lubricants and Fuels
FOR THE AVIATION INDUSTRY

Take the... — TEXACO STAR THEATRE every Wednesday night showing *Alton Smith*. See newspaper for time and station.

THE AVIATION WEEK

Propulsion Grab Bag

When Claude Ryan set down in 1936 to design an airplane capable of flying the Atlantic for merchant Charles Lindbergh, there were no problems he did not have to solve in plant activation. This happy situation ended because the 125-hp Wright J-5 Whirlwind was the only power plant in existence then available.

With this as a starting point, the remainder of the airplane fell almost automatically into place. Designers continued to produce aircraft based on such simplified power plant selection until World War II—and then came Pratt & Whitney's aircraft gasoline.

Today, the designers speak at much of the study time evaluating power plant/aircraft combinations as to how to spend in the preliminary design of the airplane itself. In addition to a dozen basic engine types, there are enough variants in aircraft engine construction and components available to baffle the most astute designer.

But as though this complex situation were not enough, propulsive research and development is continually changing the power plant spectrum through quick improvements in aircraft types and indefinitely slow improvements in others. As a result, the range of available power plants has become a veritable "jungle book" into which the hopeful designer throws his hands with only a hazy idea of what it will bring forth.

Technical Battle

This complex situation is a tribute to the engine industry. One of the great last-minute national races has been the race to battle between aircraft and engine manufacturers. First we had early aircraft which were seriously underpowered. Then came World War I engine developments at McCook Field that produced engines far too powerful for existing aircraft with the exception of record-breaking special racing aircraft. In the 1920's, the Boeing B-1 Flying Boat, Douglas B-1, and Boeing B-2, all demanding power for the creation of anything available. By World War II, at the price of war, using the pendulum back with engines considerably more powerful than aircraft could accommodate.

To write this is to say through this time, the designer has balanced any simple predilection to minimize the myriad advantages and liabilities of each power plant type, drag causing speed of the airplane, until the study must go considerations of altitude, range and fuel load lest the small aircraft of approach to safety the question: "How fast?"

By creating this race over the last century, all the nations in the world, except the Soviet Union, etc. are amply supported. And on the other side of the coin, the developing engine, regardless of its name or manufacturer, must eventually be sacrificed.

Piston Engine Poor

The compound engine, for all its admirable features, is a slow, heavy power plant. While its rate of fuel consumption per ton-mile is the lowest of any aircraft power plant, this rate increases rapidly as the speed of the airplane increases. If an airplane can be useful at 100 mph, then the compound engine can produce a specific fuel consumption of only 0.14 lbs of fuel per hour per lb of thrust.

But if that engine is taken up to a cruising speed of 500 mph, this figure increases to that of the reciprocating engine alone. At 500 mph this consumption is 0.65, which is within sight of the turboprop engine. For absolute

range, the compound engine can't be beat but only if that range is flown at less than 200 mph.

Turboprop Problems

The turboprop is about the same least as the reciprocating engine because it is a propeller. It actually selects its own altitude, the altitude engine flies at. The engine will always have suitable characteristics worldwide uniform to its sea level output. As the turboprop-powered aircrafts either increase its speed or its altitude, the engine suffers. Although its relative "silence," turboprop engines have less and will continue to be built, most engineers are convinced that this engine will die virtually at birth.

Its high power output (at 10,000 hp, it has already been developed) causes the turbine designer because it means speed, that since the turboprop engine passes 400 mph, its performance goes up and its fuel consumption sky rockets.

Its development problems have proved frustrating. Costing and unusual air problems of endurance difficulty. Propel the design for such a high speed, it is really difficult since power is large enough to stretch these great power plants nearly as much as the engine itself.

Under 300 mph, the turboprop can exhibit specific fuel consumption and specific weight lower than the reciprocating engine and provide more than twice as much payload while doing so. But 300 mph is no longer a useful cruising speed for either commercial or military fighter design.

Turbjet Solution?

The turboprop engine seemingly possesses all the virtues it can provide maximum power at such as will ever be required for flight propulsion. This power simply increases the faster the airplane flies, the fuel consumption increases, and the range of a turboprop-powered aircraft can be tripled simply by flying above 40,000 ft. It is, though, to be noted, that the aircraft and engine must be as quiet as possible. It is the ideal power plant for high altitude and speed.

These facts are only now emerging out of the welter of positive criticism of the turboprop engine. Behind the scenes, maximum progress has been made in the turbine engine, so much as to warrant the conclusion that Uncle Sam, in company with his friends in England, has put his eggs in this one basket.

But right or no, the fuel consumption of the turboprop engine already approximates that of the reciprocating engine under some comparable conditions and in its own sphere it is substantially less.

What has caused this evolution that has rendered reciprocating engines long considered as the aircraft fuel-burner? The National Advisory Committee for Aeronautics, more than any other body, has brought this issue out of its narrow sector of inefficiency and into a practical, down-to-earth economic power plant. The research muscle is being brought about by turbine blade cooling.

If the aircraft designer, either commercial or military, can obtain a cruising speed of 500 mph, a cruising altitude above 40,000 ft, and a range of thousands of miles with substantially with turboprop engines than with the reciprocating, composed, the turboprop is set when power plant, than hopefully he will share with Claude Ryan the number of design decisions that encompasses having only one logical choice of power plant. That situation will exist in the United States before 1970.

3 ACTUATORS

CONFORMING TO THE LATEST SPECIFICATIONS



Trim-Actuator
Cylindrical unit for Trim Tab
operation with Transmitter



ROTORAC
General purpose right
angle rotary Actuator with
Transmitter.



High efficiency
Linear Actuator
with ball bearing
system

Lineator

Two 3rd-Quarter-tonne medium in the latest specifications and include positive transmitter, non-shock and thermal protection. Synchromesh and positioning switch available.

DESCRIPTION: LINEAR ACTUATOR



75 WINDSORSTON STREET • HOBOKEN 2, NEW JERSEY

Wireless Representatives

JAMES L. ADAMS & CO., LOS ANGELES 36

AVIATION CALENDAR

Sept. 19-20—Third Annual Jetfana Aviation Conference, Fortune, GMF/1958, Atlantic City.

Sept. 21-22—Annual meeting of New York State Aviation Council, Inc., Astroplex Hotel, New York City.

Sept. 24-26—Annual Automobile Engineers Association meeting, Washington, D.C. Meeting date, Sept. 25-26.

Sept. 24-26—Annual Automobile Engineers Association meeting, Washington, D.C. Meeting date, Sept. 25-26.

Sept. 26-28—Flight Safety Foundation aircraft accident investigation course, Woods Hole, Mass.

Sept. 28-29—National Industrial Aviation Association meeting, New York City.

Sept. 28-30—American Society for Testing Materials—precision products and test methods meeting, New York City.

Sept. 30-Oct. 1—Aviation Maintenance and Manufacturing Association annual meeting, New York City.

Sept. 30-Oct. 1—National Aviation Trade Show annual meeting, Atlantic City.

Sept. 30-Oct. 1—National Business Aviation Association meeting, New York City.

Sept. 30-Oct. 1—American Society for Testing Materials—precision instruments meeting, New York City.

Sept. 30-Oct. 1—National Aviation Trade Show annual meeting, Atlantic City.

Sept. 30-Oct. 1—National Aviation Trade Show annual meeting, Atlantic City.

Sept. 30-Oct. 1—National Aviation Trade Show annual meeting, Atlantic City.

Sept. 30-Oct. 1—National Aviation Trade Show annual meeting, Atlantic City.

Sept. 30-Oct. 1—National Aviation Trade Show annual meeting, Atlantic City.

Sept. 30-Oct. 1—National Aviation Trade Show annual meeting, Atlantic City.

Sept. 30-Oct. 1—National Aviation Trade Show annual meeting, Atlantic City.

Sept. 30-Oct. 1—National Aviation Trade Show annual meeting, Atlantic City.

Sept. 30-Oct. 1—National Aviation Trade Show annual meeting, Atlantic City.

Sept. 30-Oct. 1—National Aviation Trade Show annual meeting, Atlantic City.

Sept. 30-Oct. 1—National Aviation Trade Show annual meeting, Atlantic City.

Sept. 30-Oct. 1—National Aviation Trade Show annual meeting, Atlantic City.

Sept. 30-Oct. 1—National Aviation Trade Show annual meeting, Atlantic City.

Sept. 30-Oct. 1—National Aviation Trade Show annual meeting, Atlantic City.

Sept. 30-Oct. 1—National Aviation Trade Show annual meeting, Atlantic City.

Sept. 30-Oct. 1—National Aviation Trade Show annual meeting, Atlantic City.

Sept. 30-Oct. 1—National Aviation Trade Show annual meeting, Atlantic City.

Sept. 30-Oct. 1—National Aviation Trade Show annual meeting, Atlantic City.

Sept. 30-Oct. 1—National Aviation Trade Show annual meeting, Atlantic City.

Sept. 30-Oct. 1—National Aviation Trade Show annual meeting, Atlantic City.

Sept. 30-Oct. 1—National Aviation Trade Show annual meeting, Atlantic City.

From High-Speed Bombers to High-Speed Transports MARTIN LEADS THE WAY INTO THE FUTURE!



TODAY: The Martin 2-0-2 as a military transport can carry 11,000 pounds or more than 13,000 pounds of military cargo—over twice the capacity of transports employed at the end of World War II and 100% faster. And the 2-0-2 can fly 1,000 miles faster than the World War II piston transports—yet operates from the shortest runways, small airports.

Tomorrow

Martin engineers are constantly at work harnessing

higher and higher speeds to the transport and

combat needs of our Military Services. In the

days to come, look to Martin for many wing

aircraft and other swiftly developing fields.

The Glenn L. Martin Co., Baltimore 3, Md.

Martin
AIRCRAFT



Builder of Dependable

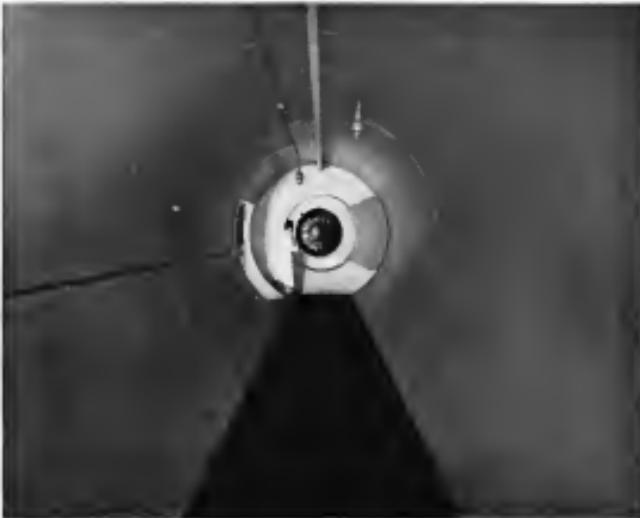


Aircraft Since 1908

Watch the

New Wings over the Navy
Navy Day, Oct. 27

"*TRAIL AND LEAD*," Glenn L. Martin's new book, is the thrilling story of the basic man who flew and served Martin B-57 Marauders in heroic order from the Southwest Pacific to the gates of Berlin. We are proud to be associated with these gallant men.



READY TO MEASURE AIR IN SLOW MOTION

In about the time it takes you to read this advertisement, a one-ton mass of high velocity air can roar into this 20-foot "plenum" chamber and be suddenly lagged down to slow, pulsating motion so that engineers can measure it accurately.

The chamber is one of the many devices used in the Wright Aerodynamic Research Laboratory to study and evaluate the performance of compressors for jet propulsion jet engines.

Because the chamber is one of the many devices used in the Wright Aerodynamic Research Laboratory to study and evaluate the performance of compressors for jet propulsion jet engines.

the use of this huge plenum chamber, the high velocity of diffused air entering the chamber is converted to static or ram-type measure pressures.

The accuracy of the data obtained by testing various compressor designs in this unit is very important to Wright engineers... because a small improvement in compressor efficiency results in a sizeable increase in the overall efficiency and power output of new engines... and better efficiencies and higher power use their current goals.

Another example of the painstaking research behind the development of Wright aircraft engines.



POWER FOR AIR PROGRESS

WRIGHT

Aerosautical Corporation • Wood-Ridge, New Jersey



NEWS DIGEST

DOMESTIC

For the first time in the history of the Federal Aircraft Council, an engine manufacturer was invited to lead the AIA organization when C. J. René, president of Continental Motors, Marietta, Mich., was named chairman at a meeting in Detroit last week.

U. S. Air Force issued call for 10,000 former servicemen to return to active duty in order to assist in war in England and Western Europe. Applications will be accepted at any U. S. Army recruiting station.

Edmund F. Wilhite, Jr., design engineer of the radio division of Bendix Aviation Corp., has been appointed chairman of the Radio Technical Committee for Ammunition special committee on SC-46, which will investigate and make recommendations for standard antenna control panels.

Three flights of two Boeing B-47s will be sent to Alaska for winterization training between Nov. 1 and May 15. They are part of the 4th Boeing Wing Staff, based at Compton, Calif., in base of Faribault.

Lockheed Aircraft Corp. is putting a Constitution through CAA tests for a restricted gross weight of 305,000 lb., a 3000-lb. increase.

FINANCIAL

Bendix Aviation Co. declared dividend of \$3.50 a share on \$600,000 share of outstanding common stock, payable Nov. 24 to holders of Nov. 1.

Northrop Aircraft has paid dividend of 25 cents a share Oct. 13 to holders of record Oct. 6.

Messerschmitt-Mitsubishi Co. has called stockholders meeting for Nov. 10 to discuss its losses of \$10,000. Gold Coast branch reported profit of \$14,115 for fiscal year ended June 30 on sales of \$3,346,449.

FOREIGN

British Ministry of Supply has awarded 10 Avro 681 Ambassador, twin-engine, 40-passenger transports to British European Airways.

Boeing Dutch Aircraft (BDA) has started a new service direct from Manaus, Brazil, to Cumaná, Venezuela.

International Airlines traffic transaction at the IATA clearing house in London reached a new high of \$17,317,000 in August. American Airlines' cargo department handled \$18 million, compared to \$12 million in the similar 1947 period.

Regions offices serving Moscow have begun home delivery of telekin control by telephone.

INDUSTRY OBSERVER

► Northrop is negotiating with the Air Force for the conversion of the McDonnell XP-87 flying wing fighter into the XP-88 Flying Wing. The flying wing has exhibited good performance in excess of its original predecessor, and Northrop sees no reason for completing the remaining Flying Wings in a configuration of four prototypes.

► Continuing the alphanumeric series of names for McDonnell aircraft, the McDonnell XP-86 has been named the Cobler and the XP-88 has been named the Voodoo.

► Northrop T-38B is slated for type testing by the Air Force, and eventual sizable production contracts are expected. The turboprop engine has already delivered 10,000 hp. (greater power per produced in a single aircraft engine of any type) in one version and more than three different versions have been developed.

► Multi-engine testbed for the Nopar Nasad turboprop installation for the new Vultee Aviajet. Viosound 3600 shaft horsepower will be the obsolescent Vickers Windstar Mark I, a propeller-contraction four motor booster. First prototype Viosound has four Rolls-Royce Dart turboprops delivering a total of 4000 hp plus 1900 lb. static thrust to augment the Nopar greater power of 6800 hp plus 900 lb. static thrust.

► Chase Aircraft Co. is completing its C-122 twin-engine assault transport with a target flight date early in November. Meanwhile, Air Force has completed static tests on the CG-4B, the C-122s glider counterpart, with all improvements installed, and three CG-4Bs have been delivered.

► Consolidated Vultee is still seeking funds to set up its supersonic testing program (Aviation Week, Oct. 1), but even though the plan may depend more on the U. S. government rather than the company to raise capital. Transport plane manufacturers in general apparently are cool to the idea. They fear the testing corporation would become so large it could dictate plane types and designs. It is questionable whether Floyd B. Olson, California chairman, will pass the testing plan for Convair planes alone unless he has some arrangement that eventually the corporation could handle planes of other manufacturers as well.

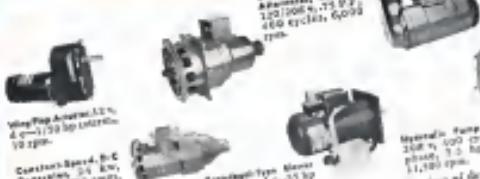
► U. S. observers returning from the various aviation conferences held recently in Europe feel that the Russian satellite nation has put their best efforts to close their borders to the centers of western aviation. Opening up of the campaign may be a Czechoslovakian move to stop British European Airways service to Prague.

► New jet fighter will be developed for the Royal Australian Air Force by the Commonwealth Aircraft Corp. CAC is now taking up to produce the Rolls-Royce Avon jet power installation for the de Havilland Vampire, but the RAAF has been as expansion with performance of the Grumman Panther provided with the same engine, that it wants a similar model designed and built in Australia. Meanwhile, assembly of the obsolescent Mustang fighter is continuing at the CMC plant. The Mustang program may even be intended for another year with jet-powered types to be production.

► British interceptors now express themselves, flown over 250 miles miles in East Anglia, are showing extensive interest in that, to date, 95 percent of schedules have been completed in all-weather and night flight operations. The report comes from C. Cobb Cooper, publications director of the Helicopter Air of Great Britain, now at the United States studying that nation's helicopters and gathering a library of U. S. helicopter development information.

► British have been having trouble with the efficiency of their new night fighter radar, the A1MK8 "big-below" system. Feature of this new radar device is to project graticule, accepted horizon and target on the windshield so that the pilot need not remove his eyes from the night sky. When first contact is made, "big follow" A1MK8 consists switch similar to auto pilot and thereafter the search fighters and intruder fighter are never poked until the fighter pilot disconnects the auto-pilot.

AIRCRAFT MOTORS AND GENERATORS



Variable Speed A-C
100-1500 rpm

Constant Speed A-C
100-1500 rpm

Constant Speed A-C
100-1500 rpm

Constant-Resistance
A-C Motors
120-1500 rpm, 75-92
140-1500 rpm, 6,000 rpm



Variable Speed A-C
Dimensions: 12" x 9
16" x 14" x 10
Weight: 1,000 lbs/1,500 lbs



Variable Speed Motor
120-1500 rpm, 75-92
140-1500 rpm, 6,000 rpm

proper combination of dependable performance and minimum weight. The units pictured are just a few to indicate the range of application, the speed, frequencies and powers available via both motors and generators.

There's a drive for every flying problem—and a generator to supply the power—or the complete line of Westinghouse motors and generators, built to exacting specifications and tested under unusual flight conditions—thus they give you the

PLANE PERFORMANCE • FLIGHT SAFETY • GROUND OPERATIONS

*You can improve all 3
with products like these...*

The building of a variety of products for aviation is a big business at Westinghouse. Some of these products are new... others are refinements... and all owe their wide acceptance to a superlatively achieved by creative research and development. In any one or all of these products, you will spot opportunities to improve plane performance and flight safety or boost efficiency in ground operations.

For more information, call your nearest Westinghouse office or write to Westinghouse Electric Corporation, P. O. Box 966, Pittsburgh 30, Pennsylvania.



Westinghouse

PLANTS IN 25 CITIES... OFFICES EVERYWHERE

AIRBORNE



ELECTRICAL EQUIPMENT • INSTRUMENTS • RADAR • PROPS • ELECTRICAL PARTS • TANK, PLASTIC, METAL • AIR CONDITIONING

ALL-WEATHER AIRPORT LIGHTING

Here's another Westinghouse development designed to remove the hazards imposed on aircraft by "foggy" strip conditions. The approach lighting system to guide the aircraft to the end of the runway are shown below.



Wing Approach Lighting
Light-tight design to polarize light patterns and reduce under-wing light interference to a minimum. The unique construction of the fixture permits easy high-altitude installation, even in high-wind conditions, with no signs of breakaway.



Runway End Extension Light
Runway lighting is a necessary continuation of control station lighting. This is accomplished by the unique combination of a high-intensity, high-power, vapor-tube, 1,000,000-watt, 120-240-volt, 50-60 cycle, high-intensity discharge lamp.



Runway Edge Markers
Light-tight, high-intensity light fixture with a choice of colors to indicate the end of the runway. The fixture is designed to be easily installed and requires a minimum of 180-200 watts of high-intensity discharge lamp.

MICARTA "444"



Micarta



Radio Speaker Insulation



Instrument Housing Insulation



Panel Covering

This tough, versatile insulation offers you the opportunity to increase aircraft payload weight, strength, lightness, portability. Production of Micarta panels can be formed and extruded because it can be formed easily into intricate shapes with temperate

heat equipment. It is resistant to heat, cold, moisture and chemicals and can be easily machined with ordinary tools. It is only half the weight of aluminum, yet nearly twice its compressive strength. Above are a few sample applications.

Westinghouse Aircraft Pulleys

A source for aircraft duty, Westinghouse pulleys provide real dependability in the vital division of cable control. There are over 100 types of aircraft line that have been approved by the Army, Navy and CAA. Lightweight and simple, Westinghouse pulleys cause practically no wear on the cable, with a minimum of wear on the sheath, which insures long life for each cable and pulley. They are available in a wide range of standardized sizes for every type of cable required from engine to cabin.

Battery Chargers

Recently introduced battery chargers are available for aircraft use as 45-120-volt, 60-cycle, constant-voltage, 12-cell, deep-cycle, 100-ampere, 12-cell, 150-ampere, and 16-cell, 150-ampere. Adjustment of charge rate is possible.

Battery Starters

Completely self-contained as a weatherproof steel enclosure, the Westinghouse battery starter is wheel-mounted for easy portability. It delivers full engine voltage瞬時起動 and maximum high efficiency over a wide load range.



Leader in Aviation Equipment

ON THE GROUND



GROUND SUPPORT EQUIPMENT • AIRPORT EQUIPMENT • AIRPORT LIGHTING • TIRE CHARGERS • BAGGAGE HANDLING EQUIPMENT • GANTRY CRANES

NOW... SAY GOOD-BY TO THE OLD "CUT and TRY"



The NEW Granco Temperature Compensating Meter AUTOMATICALLY maintains correct weight and balance limits during air craft fueling . . .

Measuring out a portion of gas, weighing it, then calculating the full load weight limit is now as old as sets of scales with a hand pump.

The new GRANCO Temperature Compensating Meter automatically gives you your fuel load weight in pounds as needed where the accuracy demands the exact measurement. And do it with speed and precision.

The Model TE GRANCO will compensate for temperature fluctuations from zero to 210 degrees F., or Equil, having a range of .0003 to .0009 coefficient of expansion. It automatically allows for expansion and contraction and compensates all measurement back to 60° F.

LASTING, ACCURATE PERFORMANCE

The GRANCO Temperature Compensating is built into the same aircraft and is as often as direct control with liquid control. It is easily added to any fueling system. It can be easily connected to any fueling system, so cleaning and as an afterburner by gas, air, or steam there is nothing to interfere with the temperature compensation device.

Please send me complete information and weights of your new GRANCO Temperature Compensating Meter. I understand this is confidential.

NAME: _____

COMPANY: _____

ADDRESS: _____

CITY: _____ STATE: _____



Model TE GRANCO. Also available in 2000, 4000, 6000 and 8000.

Granco

GRANBERG CORPORATION
Oakland 8, California

One member of Granco Battery Positive Displacement Pump

Jet Overhaul Activity Expanded at Navy Base

The new jet engine overhaul facility at Alameda Naval Air Station, Calif., is planned for continual expansion into the largest such installation in the nation. The center is also designed to accommodate jet aircraft overhauls.

Location of this strategic activity is intended to place it in proximity to West Coast aircraft manufacturers and the Navy's aircraft flight training bases in Southern California.

It also will facilitate an supply to Pacific areas at such time as carrier and land-based jet aircraft are assigned to those bases.

The Alameda facility is presently operating an overhaul line for General Electric-Jet-Air J-35 turbojets and in the North American FJ-1 fighters stationed at North Island Naval Air Station, San Diego, Calif. The engine is also used in the Douglas D-558-1 research aircraft.

At present, only one building is used for the FJ-1 overhaul but other buildings are being made up for the assembly line overhaul of Westinghouse 198 (J-35) and 26-C (J-34) turbojet engines, the latter scheduled to be more widely used in Naval jet aircraft than the J-35 turbojet.

To supplement the overhaul activity, a special jet engine maintenance and overhaul training school was established at Alameda last January. The training program has been accelerated to accommodate the 6000 estimated soon to be deployed to the school.

The course originally emphasized 60 hr of classroom but has since been expanded into an intensive program covering 70 hr.

Limited Production Found Most Expensive

In terms of software per flight, "limited production" of aircraft for the armed services is the most expensive way to buy them.

To buy two experimental flight in trials plus a static test airplane of a new type costs the average \$752 per pound of maximum payload software. Increase this order to 50 production models plus the three prototypes, and the price drops to only \$72 per pound. But the cost per production quantity of 100 of these airplanes plus the three prototypes would cost \$66 per pound. But a graphical analysis to the cost of mass production is sure in the fact that 500 of these airplanes plus the three prototypes would cost the service only \$14 per pound.

Short Short jettisons for airline operators, charter companies, and V.I.P.s



The Sealand in flight—predatory dive straight

The Sealand steps out...



Recent nonstop range exceeds 275 miles. The Sealand can fly nonstop in flight over much of Europe

TRYING-BOAT PERSONALITIES

Captain Peter

JOHN STRANDBORG

D.C.L. of U.S.A.



Executive Director of
Tourist Board, Berlin,
Germany, Berlin and
West Berlin, Germany
Received special award
during visiting plane

He came to England in 1945 and spent three years flying between Stockholm and Scotland under secret names, political refugees from Nazi Germany. After the departure of the British, he became a solo pilot, flying to the V.I.P. on the British皇室, and for defending the perimeter, as another reward, on the line to Stockholm, Strandborg was awarded the G.I.E. (Eiffel).

One of the most experienced and best pilots in Norway, Captain Strandborg is delighted with D.S.L.'s choice of Short 310s for the Norwegian routes.



The short 310—spit straight

Shorts

THE FIRST MANUFACTURERS OF AIRCRAFT
IN THE WORLD

Short Bros. & Harland Ltd., Queen's Island, Belfast
Export to 47 countries, London W.2

Standardization Manual For Drafting Procedures

Standardization of aircraft powerplant, propeller, component and parts drawings, to make for greater production simplification, is being accomplished by manufacturers through the use of the Aeronautical Drafting Manual issued by the Society of Automotive Engineers.

SAC's committee on drafting is an integral part of the aircraft works design division, and has begun to standardize the language of the blueprint.

Large manufacturers support the standardization recommendations in Rockwell Aircraft division, Toledo, Ohio. More than 1000 firms are using the manual either in part or in whole. At least 40 companies have adopted the manually recommended 0.01 that shows by a plus or minus variation of fractions of an inch.

The manual is also being used by engineering colleges as a textbook.

Rift Made in Plant-Wide Bargaining Arrangement

Plantwide bargaining on the aircraft industry has been studied by the International Brotherhood of Electrical Workers, U. F. L. However, employers who deal with one union in regard to production and maintenance workers can expect the IBEW to try to carry out a plant wide arrangement and get help from the National Labor Relations Board.

The IBEW victory was scored by IBEW at Rockwell Aircraft Corp. plant at Van Nuys and Burbank, Calif., where the International Association of Machinists, aeronautical industrial district Lodge No. 727, has held a contract covering all shop workers since 1957. The A. F. of L. union got NLRA to grant it an election among maintenance electricians, then had IAM by a vote of 31 to 10.

New Lockheed will have to deal with IAM as to its production and maintenance, lever, insert, electrical and with IBEW as to the electricians.

Other companies at which NLRA has approved a plant bargaining unit of electricians include Douglas Aircraft Co., Bremont Aircraft Corp., Laramie Aircraft Corp. and Consolidated Vultee.

Strikes for splitting up bargaining units have been a Taft-Hartley law problem that the NLRA did not decide. But a court held it is inappropriate to create a new unit in a company that effect union representation of the employees in the proposed units and rule against separate negotiations.

PRIMING THE "PANTHER"
WITH AN ADEL PUMP



100166-8

The P5F "Panther" aircraft of the famous German Navy planes, depends on an Adel fuel engine priming pump for raising its powerplant's engine oil pressure. The pump is completely Adel engineered to meet the specific requirements of the P5F. Supplying moderately engineered designs for specific aircraft is standard procedure with Adel. Consult the Adel Engineering Sales Department for assistance with your particular problem.

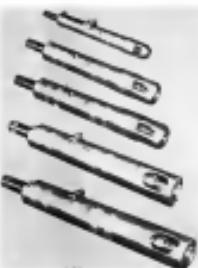
Other Adel products on German aircraft include condensate heater pump, water relief valves and a full line of Adel clamps and hose supports.

For information on all Adel aircraft products write:
ADEL PRECISION PRODUCTS CORP.
10221 Van Owen St., Bellflower
California • Canada
Export Division: Adelco &
Power Engineering Corp.,
London



ADEL PRECISION PRODUCTS CORP.
BURBANK, CALIF. • PUNTINGTON W. VA.
Manufacturers of Aircraft-Hydraulic Systems • Airframe and Industrial Hydraulic Components • Low Pressure Clamps and Hoses • Industrial Hydraulic Equipment • Aircraft Valves • Industrial Valves

NEW AVIATION PRODUCTS



Multiple Drilling Tools

Speed, accuracy, and maneuverability of operator bring a multiple drilling system to Adel's aircraft design, produced by Kefler Tool Co., Grand Haven, Mich. Line consists of five major tools to afford 36 speed combinations of stationary and portable units for holes up to 1/4 in. in mild steel, aluminum, brass, or plastic. Tool weights range from 21 to 25 lb. Adel's drill is a combination of air drill, air cylinder and hydraulic cylinder. Drill is mounted assembled in one housing and arranged for holding progressively in 1/8 in. increments into fixture.



Time Delay Unit

Applicable to aircraft, scientific and industrial fields, hermetically sealed "Timeplex" time delay fitted with cold plug-in base is made by Eldec Electronics Div.

Cook Electric Co., 2580 Springfield Ave., Chicago 14, Ill. Settings are available from 1 sec. to 2 min. duration. Unit is repeatable in operation when subjected to 12 G. acceleration. Heater current can be adjusted from 6 to 115 ma., i.e., in the timing tolerance mentioned when design is subjected to ambient temperature changes from -65 to 160 F. range from 5 percent at 75 sec. to 10 percent at 412 sec. Weight is 1.6 oz.



For Profiling

Scalable, double-bladed, electro-mechanical chopper actuated by Steves-Armel Inc., 57 E. Illinois St., South Berlin 27, Mass., converts pure d.c. to pulsating d.c. at a rate so fast output of frequencies, short pulses, or irregular d.c. bursts may be amplified by a.c. At times it converts a.c. to dc. Constant rating is 8,150 amp., 500 d.c. Cutoff rating is at 12v., a.c., 10,500 cps., but it's stated this may be increased to 24v. without damage. Unit is hermetically sealed. Overall height is 21 in., diameter is 11 in.



For Aerial Photography

For use by engineers, photo cameras, and other aerial equipment aerial photographs, Model 1271111 holding apparatus is manufactured by Friedrich Camera & Instrument Corp., 88-96 Van Wyck Blvd., Jamaica 1, N. Y. There held firmly to cameras or dials and body when out of use. Measures 16 in. long, 4 in. fixed length and 23 in. power magnification overall, out of persons and are adjustable horizontally over a range of 20 to 72 mm. Unit weighs 4 lbs. plus prints. Oeipiphoto costs 34 x 33 x 4 in. Weight is 75 ounces.



1

thing in common

* All the they look different, all have **one thing in common**—Saval's exclusive "Shear-Seal" principle. Thousands of "Shear-Seal" valves now in service are proving themselves outstanding for their reliability, low handle load, leak-proof characteristics and trouble-free maintenance. Unusual metal-to-metal contact of sealing members keeps away any leakage matter. The longitudinal sealances and unique simplicity of "Shear-Seal" valves are established facts. **Complete line, 5 to 4500 psi, manual, pneumatic, motor and solenoid actuators; for hydraulics, fuel, pneumatic, liquefied gases, corrosive acids, etc.**



SAVAL, INC. • 1915 EAST 51ST STREET • LOS ANGELES 11, CALIFORNIA

Branch Office: 260 Front St., Mineola, Long Island, New York; 519 S. Broadway, Wichita, Kansas

AVIATION WEEK, October 25, 1948

SALES & SERVICE



Two personal planes have developed from World War II target drone planes, and the new jet airplane, whose outstanding performance is probably as a radio-controlled target craft, might likewise be a forerunner of a jet personal plane. The sketch shows design study of the monoplane, which is being developed at Cal-Aero Technical Institute, Glendale, Calif. In 1947, three jet engines were being built there.

Cal-Aero Designs Midget Jet

Low-cost craft, suggested for possible military use as a drone, may show the way to a personal jet plane.

Forerunner of possible future jet-powered personal planes is a single place jet airplane design now being developed by H. G. Nethleton, director of training at Cal-Aero Technical Institute, Glendale. Powered with a 249 pound thrust liquid oxygen engine, the plane, designed by Cal-Aero, the firm that is subcontracted for completion within the next year, with engine tests scheduled early next spring.

A primary advantage of this plane would be the fact that the powerplant cost, a large factor in any propeller-engine-powered small plane, would be lowered because the engine was produced by the plane manufacturer and was made simply from surplus aircraft scrapage.

▲ All Metal-Plane designs calls for all-metal construction using a butterfly or V tail and a double tail wing. All tailplane for the engine sits in the tails of the foreplane, just behind the cockpit; exhaust sits at bottom of fuselage, beyond the tail assembly. Engine is behind pilot.

Nethleton quotes estimated performance figures for the single place as typ-

ical of 250 mph with cruising speed only slightly less, range of 325 miles, 1380 ft/min. rate of climb, and fuel consumption of 75 gal/hr. Due to the light weight of the engine, the plane would be able to carry a larger payload of fuel.

► Waggoner—Plans as to how 28 ft 2 in. in wingspan, overall length of 27 ft 11 in. and overall height of only 7 ft 11 in. Gross weight is set at 1775 lb. Landing gear is all "bicycle" type, with two main wheels set in tandem along the centerline of the fuselage and two outrigger wheels on the wings for takeoff.

Originally drawn up as a project for Cal-Aero engineers classes, the design is now an interesting prototype for small hobby practitioners.

► Design: Nethleton envisions the jet-powered airplane as a possible target plane for military use, with advantages over currently used Duesenberg as low cost and superior performance.

► If certification can be obtained on the engine, combination of surplus type B supercharger parts, the engine could be produced cheaply enough to make it

an interesting potential personal plane.

► Problems: No personal aircraft in the hobbyist class has yet been developed with a jet powerplant, but the prospect of a low engine cost for enlarged aircraft engines in the field even since the first jet plane was announced.

Dr. T. P. Wright, vice president of Cornell University and former CAA's airmanator, predicted last year in a House speech that the eventual choice of a low cost personal plane powerplant would be a form of jet engine, when this type of propulsion and advanced airfoil technology necessary for personal plane operation.

Work on the plane has progressed to mockup stage. The engine is the latest in a series of small jet powerplants produced from surplus materials and is expected to power endurance qualities considerably surpassing those developed at Cal-Aero's shops in the last four years of continuing development in that field.

Convair Gives Up Flying Auto Rights

Separation of the four-plane Convair division Valley Flying Automobiles and all further rights to the "flying automobile" by the late W. P. Hall, director of the airplane section, San Diego.

Hall said that more than \$800,000 had been expended in development of the unconventional roadable plane, and that only some flight testing and engine reworking modifications remain before it will be ready for production. He is considering several propositions for its further development.

► Contract Terms—Hall signed a contract last year with Convair for development of the roadable plane. After development expenditures were stopped by the manufacturer, Hall sold all rights in manufacturing rights to Hall until the contract, when he resigned his manufacturing part with the company.

The flying automobile includes two completely independently treaded solid rubber tires with a body of laminated glass plastic, powered by a 16.5-hp. Crocker engine mounted in the nose, and a light component, including wing 190 lb. Lycoming engine, tailfin and tail assembly, which attaches to the nose of the automobile for flight. Hall reported that flight tests have been "very encouraging" with the aircraft running a cruise speed of over 100 mph. On the ground the car attains a top speed of 67 mph, and travels 65 miles per gallon. Hall will continue his development work on the project at Convair Field, San Diego.

The dreamlike plane has been moved in a large truck



WILCOX

FIRST CHOICE OF

BRANIFF *International* AIRWAYS

BRANIFF EQUIPS GROUND STATIONS
WITH WILCOX TYPE 366A TRANSMITTER

DESIGN SIMPLIFIES SERVICE

Conventional circuit design, fewer number and types of tubes, plus open instrument circuit simplify tube stocking problems and speed maintenance. The entire transmitter portion of the Type 366A is built on a drawbar type chassis, entirely withdrawable from the front of the panel.

RELAY RACK MOUNTING SAVES SPACE

Compact design requires only 15 inches of rack space for crystals but, frequently utilizing space already available.

98% FREQUENCY STABILITY WITHOUT

TEMPERATURE CONTROL

Through the use of a newly developed crystal, troublesome short-period temperature effects and crystal ovens are no longer necessary to provide adequate frequency stability.

SIMPLIFIED CONTROL FOR REMOTE LOCATION

Modulations over a single telephone pair, and carrier control by means of a simple circuit, allow the transmitter to be readily located at a remote point.



WILCOX
Type 366A Transmitter
115-126 MC Band

Write Today... for
Complete Information

WILCOX
ELECTRIC COMPANY
KANSAS CITY 1, MISSOURI



AIR TRANSPORT

Domestic Airline Traffic & Revenue

Comparison of First Eight Months 1947 & 1946

	Rev. Per. Miles	Net Oper. Income
Carrier	1947 1946	1947 1946
American	\$10,315,000	\$16,791,000
Braniff	170,720,000	188,731,000
Capital	594,068,000	688,301,000
Chesapeake & St.	72,018,000	70,662,000
Colonial	35,199,000	35,712,000
Continental	18,181,000	18,321,000
Delta	178,184,000	172,691,000
Eastern	570,218,000	675,228,000
MacCormack	18,562,000	17,966,000
National	111,380,000	121,187,000
Northwest	62,793,000	74,589,000
Southwest	215,440,000	216,711,000
TWA	115,170,000	97,649,000
United	756,987,000	761,189,000
Western	13,615,000	15,148,000
Total	1,866,074,000	1,877,835,000

* TWA figures for August estimated

** J. L. C. - 10/25/46

Trunklines Look To Last Quarter

Carriers hope fare discounts and CAB action on mail pay will cut 1948 losses, now near peak level.

With four of the industry's "big five" in the red, the 16 domestic trunklines have taken next-round losses into the final quarter of 1946.

But the last three months of the year should show improvement over the same 1947 period, when DC-6 arrivals and the subsequent grounding brought exceptionally heavy losses to American, Braniff and United to Los Angeles. The trunk lines have had the only appeal of recently introduced fare discounts to last year's level. And CAB action on pending mail rate cases may help the picture substantially.

► **Eight Month Deficit.**—An American-Wires survey covering the first eight months of 1946 shows the 16 domestic trunklines with an estimated \$11,489,407 operating deficit. In the same period last year, when losses were heavier for an all-time peak of over \$20,000,000, the operating deficit aggregated \$15,338,976 for eight months.

Net losses this fall will be the first to have been mounting steadily with 1947 losses. The carriers are now getting considerably less benefit from federal tax credits.

Passenger volume handled by the domestic trunklines in the first eight months of 1945 lagged behind 1947's level by more than 3 percent. Revenue passenger mileage aggregated 5,837,505,000 through August, 1946, against 5,986,000,000 last year.

United Air Lines, first to report on September traffic, announced that net passenger revenue was 6 percent greater than the same period last year. Braniff had a 11 percent better Sept. month of last year.

► **Flight-Mile.**—Deficit in American-Wires survey covering the first eight months of 1946 shows the 16 domestic trunklines with an estimated \$11,489,407 operating deficit. In the same period last year, when losses were heavier for an all-time peak of over \$20,000,000, the operating deficit aggregated \$15,338,976 for eight months.

Passenger volume handled by the domestic trunklines in the first eight months of 1945 lagged behind 1947's level by more than 3 percent. Revenue passenger mileage aggregated 5,837,505,000 through August, 1946, against 5,986,000,000 last year.

United Air Lines' route in Hawaii continues to be a loss-making money center. Operating profits of \$71,621 in July and \$97,150 in August were offset by a first half deficit of \$119,795. Total revenue on this flight was down 80 percent in July and 95 percent in August.

Profitable losses have been shown in each of the first eight months of 1946—May and June. In July, the carriers went into the red again with \$193,621 operating deficit.

Brasfield results were mixed in August.

September earnings may be the best in 1946. American, United and TWA are expected to show sizable profits. Chicago & Southern already has reported \$17,446 in income during the month of September.

► **ADS in Black.**—Meanwhile, American Overseas Airlines is suffering the poor passenger return of U.S. flight carriers. The carrier reported \$11,847,000 in passenger revenue in the first half of 1946 with earnings of \$657,986 in July and \$653,318 in August. ADS's passenger load factor during the two months of July and August averaged about 60 percent.

TWA's revenue operations continued in the red. Following a \$2,984,000 deficit in the first half, the carrier reported a \$186,916 loss in July for foreign services and another loss in August. Total load factor during the two months of July and August was up slightly, about 60 percent.

Pan American Airways had profits on its Atlantic flights during July and August on load factors returning toward normal. But earnings, including TWA, in other Route 8 flights, are down.

► **Point-Route.**—Northwest Airlines is doing well on its Grant line. After showing \$153,313 net operating income during the first six months of 1946, it reported a \$146,758 profit in July and \$21,486 in August, when passenger load factor was averaging around 77 percent.

United Air Lines' route in Hawaii continues to be a loss-making money center. Operating profits of \$71,621 in July and \$97,150 in August were offset by a first half deficit of \$119,795. Total revenue on this flight was down 80 percent in July and 95 percent in August.

Transocean Signs Contract To "Organize" Carrier

Transocean Air Lines has signed a \$1,000,000 contract with this Air, Ltd., to furnish the Pilots union with plane crews and aircraft personnel. Contract marks the second time that Transocean has helped a foreign air line to set up international operations. A similar operation was recently completed to provide work and personnel personnel for Philippines Air Lines.

Agreement provides for delivery of four DC-3s to DC-3s and the furnishing of crews to fly for Pan Am. Transocean also will assist in training Pan Am's flight and ground personnel. One DC-3 already has been delivered.



It's Always something better at ADAMS-RITE. Locks and latches that secure fasteners, compensation, latches or bolt head covers are especially designed to hold fasteners to fit the requirements of the producer... rather than having a producer to fit the requirements of a standard model lock. For this reason, we are the acknowledged authority in aircraft locking devices... to the point of supplying 99% of such equipment in use on larger aircraft. The creative men at ADAMS-RITE offer to save you engineering and experimental time as you look for problems. Such assistance is yours for the asking whenever you need it.

DEALER INQUIRIES

ADAMS-RITE
MANUFACTURING CO.
540 WEST CHEY CHIEF DRIVE, GRANDISBIA, CALIFORNIA 91343

CAB Again Rebuffs Nonskeds

Board rules out exemption to cover scheduled second-class service; Standard wins court victory over AA.

Unsubsidized transcontinental aircoach operators have taken another setback from CAB in their campaign for broader operating privileges. But at the same time they have won an important legal skirmish in the federal courts.

The Board unanimously denied the petition of Standard Air Lines, Viking Airlines, and Alaska Transport Company for extension of their exemption as thorpy or aircoach operators to prevent scheduled service. (Aviation Week, Aug. 9.) CAB made clear that its decision should not be construed as a denial of need for coach-type operators. But it emphasized that need of the public for subsidized second-class service should be developed through regular commercial passenger net through different economic categories.

Washington, D.C.—The application of the three thorpy operators used an apparent misconception of the correct purpose and interpretation of the nonsubsidied exemption—a misconception which seems to be shared by a substantial number of carriers engaged in single-service CAB delayed. The Board pointed out that the nonsubsidied exemption may cause carrier transportation of persons and cargo only if no portion of regular air carrier routes of regulation are being circumvented at their own risk of violating the Civil Aviation Act and the Board's regulations.

In rejecting the proposed exemption, the nonsubsidized carriers had advised that they could not operate profitably if they complied with CAB's present regulations. Standard has admitted making over 1000 transcontinental trips with DC-8s in the past two and one half years. CAB replied bluntly that if large transcont. type aircraft cannot be used profitably under the nonsubsidied exemption, either they should be removed from operation or a proper re-

view that its primary purpose is to provide relief for the specific terms of the so-called fixed base operators and for carriers engaged in seasonal or limited operations. There is nothing in the Act or its legislative history to justify the Board's response of narrowing the conditions of service in the Act.

By authority of the Board, new operating regulations which, although involving some operational characteristics, are neither unusual nor so circumstances are limited in extent.

Board Ruled—Obviously ruled by continued violation of its regulations, CAB said the airline leaders on Standard, Viking and ATC which would result from denial of their bid for broader exemptions would consist only of a requirement that they confine their operations to those authorized by their letters of regulation.

Ability of a carrier to launch commercial route operations which it believes would produce additional revenue is clearly not a sufficient showing of unique benefit within the meaning of the Civil Aviation Act. Any expansion beyond those authorized by their regular air carrier routes of regulation are being circumvented at their own risk of violating the Civil Aviation Act and the Board's regulations.

In rejecting the proposed exemption, the nonsubsidized carriers had advised that they could not operate profitably if they complied with CAB's present regulations.

Standard has admitted making over 1000 transcontinental trips with DC-8s in the past two and one half years. CAB replied bluntly that if large transcont. type aircraft cannot be used profitably under the nonsubsidized exemption, either they should be removed from operation or a proper re-

view should be obtained before regular routes are undertaken.

"Carriers may not operate legally on the ground of economic necessity. It is clear that any other person would also be entitled to operate even more freely elsewhere. If this principle is not followed, then by the same token a small certificate holder having made an investment in a large number of aircraft, or in planes suitable for long range operations, could enough legally in the nature of another subsidized carrier on the ground of economic necessity."

Court Victory—Meanwhile, Standard Air Lines won an important victory in the U. S. District Court for the Southern District of New York, where American Airlines had brought an application to restrain Standard from violations of the nonsubsidized exemption. The court said it was without jurisdiction to grant American's relief.

"It was not contested by the Civil Aviation Act that the courts should undertake to determine whether or not one who holds a valid letter of authority in an irregular carrier has for failed the right to operate as such," the presiding judge declared. "I can conceive of serious claims and conflict with CAB if the courts were to do so."

Other Rulings—Previously, courts in Minnesota and Alaska have issued injunctions in similar cases and held general associations against nonsubsidized operators at the request of certificated unless CAB believes that if the New York decision is upheld it would be open to the courts by certificated carriers making flights under special allied against nonsubsidized competitive services by irregular operation. Further, it may prevent court action by CAB prior to an administrative determination by the Board that the particular operation is illegal.

Confidential sources and CAB have sought injunction against alleged violations of the nonsubsidized exemption because enforcement action is usually far faster than Board enforcement proceedings. The Standard decision partly action brought by CAB against Midwest Air Transport in New York District Court and by American Airlines against Viking Airlines in New Jersey District Court.

AA Lawsuit—CAB's order of Aug. 1 suspending Standard's letter of authority was upheld by the U. S. Court of Appeals for the District of Columbia. Last week, the Board held a hearing on 40 nonsubsidized airline applications.

Meetings between independent air carrier association representatives and CAB and CAR officials to seek constructive answers to economic and safety issues affecting large number of subsidized operators were held last week.



Bolt of General Electric's aircraft new VG 150 program in the surrounding atmosphere of noise of the world's greatest dangers. The reason is in due date for this contribution to our security.

We at Marman are proud to have participated in the achievement. Highly specialized couplings were needed for aircraft and rail cars. Marman developed designs for consideration. The fact that our designs were selected to do the job is a great satisfaction.

It is also satisfying to be among design team in a major failure for many aircraft companies like Lockheed, Douglas, North American and others.

Can we save you DESIGN TIME?

There is no more need to spend design time on a clamp than on a standard nut and bolt. Marman's standard types will do almost any application and can be specified at study or standard rates and bolts.

If your problem is one specialized for a standard type, Marman will still save you time and cost by submitting a design proposal especially suited to your needs.

Save on your problems! Our business depends on solving them faster, more efficiently and at less cost than you can.

FOR ANNUALIZATION WRITE DEPT. A-10



MARMAN
PRODUCTS CO. INC.
540 W. FLORENCE AVENUE
INGLEWOOD, CALIFORNIA

This advertisement is intended to advise the public not to accept any representation of value to be given by an independent air carrier to enter into the passenger

20,000 Shares

DOMAN-FRASER HELICOPTERS, INC.

Common Stock

Per Value \$1.00 per Share

Price \$2.25 per Share

John Nickerson & Co., Inc.

61 Broadway

New York, N. Y.

Air Parcel Post

September debut of service boosts month's air-mail volume 7 percent.

Transportation of air parcel post service boosted September's overall airmail business by 7 percent—or approximately 316,500 lbs—according to latest estimates from Post Office Department officials.

Total airmail volume for the month was up 4 percent, hitting a tonnage high of 8,254,181 lbs, compared with

August's volume of 7,580,556 lbs. A small portion of the increase, Deputy Postmaster General Robert H. McLean said, was due to the first class airmail. This volume has been on the upswing over the past year. (September, 1947, volume was 6,271,614 lbs—or 2,001,667 lbs below last month's level.) But approximately 70 percent of the September increase that was credited to new air parcel post business.

► **Disappointment Experienced**—Post Office officials were somewhat disappointed with the first month showing of the new service. It made no dent in surface parcel post volume, or hopefully anticipated. On the contrary,

money-losing surface parcel post business continued to skyrocket. The Air Transport Association reported an incredible lifting off of air express traffic.

The 16,500 lbs September air parcel post volume is just a fraction of the ultimate target—50,000,000 lbs—a month surface parcel post volume.

► **Still Hoping**—But both Post Office and ATA officials and the September showing was an indication of the air parcel post outlook. Business men and the public generally were not aware of the new service and its advantages. Projections were being slow in getting an air way. The advertising campaign to promote parcel post is just now getting into full swing.

Post Office officials remain optimistic on the future. They expect the service to last surface express business, as well as express business, in the months to come.



Get This Valuable GUIDE

Aircraft Specifications, Data, Aircraft Steel Stocks

Here's a new 48 page book packed with valuable information for every aircraft alloy and stainless steel user.

Just off the press, this helpful booklet has important information on Army, Navy and Government aircraft steel specifications. It gives the chemistry, condition, form and also the equivalent standard specifications for AN-QQ-S, AN-S and AMS aircraft quality steels. As an additional help, this comprehensive guide includes a complete listing of the sizes, lengths, weights, etc. of aircraft quality and stainless steel used in Ryerson stocks.

While you're at your desk for your copy of the Ryerson Aircraft Steel booklet . . . and don't forget to call us for prompt delivery of your aircraft alloy and stainless requirements.

JOSEPH T. RYERSON & SONS, INC. Ryerson, New York, Boston, Philadelphia, Newark, Cincinnati, Cleveland, Pittsburgh, Buffalo, Chicago, Milwaukee, St. Louis, Los Angeles, San Francisco

RYERSON STEEL

Helping to keep Alaska Indian stoked during the West Coast drought crisis, Pan American Airways recently flew two DC-4s into Fairbanks with over ton of fresh food. The priority special caused eggs, milk, meat, and produce, PAA said, to double and Alaska Indian for food, medicine and other vital supplies were being sent despite the weather which has held up Pacific Coast ports since the first week of September. Last month, Pan American flew 550,000 lbs of cargo into Alaska and added 20 extra flights to its normal schedule. Flights to Alaska also are increasing. The Southeastern Air Carriers Conference, consisting of unassociated operators with a total of 25 planes in Alaska service, was flying into 10,000 to 40,000 lbs of freight northbound each day in the first of this month and reported cargo shipments had increased. Here held onto the state legal Alaska Airlines, which has four DC-4s and five C-46s, was hauling 10,000 lbs daily to the territory by early October.

Runways Unharmed By Jet Exhausts

Airport officials may have one less problem than they think. In the last few years, increasingly heavy and aircraft have imposed runway life is lengthened and strengthened. A few months ago, confronted with discussions and projections on the idea of supersonic aircraft running at supersonic speeds and causing some damage, a new problem: Would the heat from jet exhausts be harmful to conventional forms of airport runway surfaces?

Now the aeronautics division of the Army Corps of Engineers' Association, after studying the shape of paths of such heat and the intensity of heatpenetration at different levels above runway surfaces, has come up with an encouraging answer.

ARBA shows that while temperature of jet heat emitted from current jet aircraft is 752 deg. F. at the outer edge of the supersonic boundary, it rapidly to 122 deg. F. two feet above an aircraft where the heat emerges from turbine nozzle. However, the temperature climbs again to 167 deg. F. at a distance three feet above and below turbine nozzle at a point 20 ft. in back of them.

► **Insulation Heat-Says ARBA**—"Insulate the temperature which is generated on the surface . . . from the sun as frequently as high as 140 deg. F., it can be seen that the temperature of jet heat . . . is of such low magnitude as to be harmless."

But, it adds, the effect of jet heat upon the outer portions of airfield pavements is harmful.

The Air Force already knows this. Reports from the Corps of Engineers have made prevention to protect surfaces of currently operating airports from the damaging effect of jet fuel.

Whether airports now under construction should make provision for the present hazard is unanswered by Whitman, Rapson-Green Co. and Associates, engineers handling the plans at Milwaukee's Friendship International Airport, currently undergoing construction.

In a report to Milwaukee City Department of Aviation, it said:

"A spillage of fuel occurs in landing operations on all types of aircraft, having some detrimental effect on both asphaltic and Portland cement types of pavement. In addition, present fuel tank fuel is often spilled in delayed landing. The heavier fuel used in jet operations tends to effect the pavements more rapidly than the high octane gases used in piston engines, which evaporate more slowly. The primary effect is a stripping action on the aggregates of asphaltic concrete and a softening and dislodging of joint material in Portland cement concrete."

► **No Fancier Design—Conclude the engineers**—"It was considered unlikely that conventional airfields would be prepared and used for a number of years . . . It was felt that production runfing could be applied at such times as may become necessary either in the form of additional thickness to increase the load-carrying ability of, or as part of an ordinary maintenance surface."

Right now, the problem is the extremely difficult time determining manufacturers of jet engines that feasible technological developments will prevent fuel spillage in aircraft of the future.

Tudor IV Crash Unsolved

Disappearance of a British South America Airways Tudor IV transport aircraft over the Andes and Bolivia left January event remain as unsolved mystery, according to the report of a Court of Enquiry appointed by the British Ministry of Civil Aviation. No debris or wreckage were recovered from the plane which had 12 passengers and 3 crew members on board, and crashed into mountains a few miles from the Andes.

Court of Enquiry and there

are no grounds for suspending due care

technical rules or conditions in the design of Tudor IV aircraft.

The GROUND HEATER

that's really going places!

**The New
HERMAN
NELSON
De Luxe Model
Portable Heater**



POE:

- Aircraft engine protection
- Temporary cable heating
- Starter and heater heating
- The latest development in portable (ground) heating
- Full 250,000 BTU per hour capacity
- Four range oil, kerosene or propane white distillate
- Electric motor powered; 115-230 Volts, 60 cycle, single phase
- Automatic ignition
- Two 12" dia., x 12" long, retractable hot air ducts



Still Available



The original Herman Nelson, gasoline heating, gasoline engine powered, Portable (Ground) Heater. Now retired (Replaced) still in demand.

Write for interesting descriptive bulletin



**THE HERMAN NELSON
CORPORATION** MOLINE ILLINOIS

Since 1914 MANUFACTURERS OF QUALITY HEATING AND VENTILATING PRODUCTS

Rusco Seat Belts Put Safety First...



Consider these 6 outstanding
Features of Tag-Lock Seat Belts

1. Instant, instant release — in 1/2 or 1/4 second.
2. Dependability — Positive Trigger Grip—
Metal C.A.A. Test.
3. Simplicity — instantaneous adjustment
and release.
4. Length — 50" belt assembly weighs
less than a pound.
5. Folded plan to 1/2" — easy to pull
in and out.
6. Seat resistance — an automatic
stoppage.

The Rusco Belt is considered "Standard" for light planes. Other Rusco belts for every requirement. See your aircraft supply house or our nearest office.



THE RUSCO MANUFACTURING CO., Anderson, S.C.
NEW YORK • Chicago • Detroit • San Francisco

ATLANTIC SERVES



WILMINGTON
DE.

NEW YORK
N.Y.



BALTIMORE
MD.



BOSTON
MASS.



Atlantic
Flight Service is the
Master Aircraft and
Radio Service
NEAR TOWN—SOUP AT ATLANTIC

Trans-Australia Loss

By Michael World News

MELBOURNE—The Commonwealth-owned Trans-Australia Airlines had a loss of \$967,000 in the year ended June 30 last. This was less than half TAA's deficit in 1946-47, its first year of operation. Mileage flown increased by 239 percent and revenue nearly trebled to about \$16,800,000.

Private airline operators have so far managed to hang on the black side of the ledger. American Trans-Air, however, had a 10 percent increase in revenue, which helped up a new record profit of \$110,000. Ansett operates the second largest private airline in addition to its services to tourist hotels and barbecuing planes.

SHORTLINES

Am-India—Reports a \$300,000 profit during 1947. Company's fleet now consists of eight British Vikings and 15 DC-3s.

Anglo-Ind. Air Transport—Brisbane suspended its service between Long Beach, Calif., and Cocoskin Island.

Capital—Company's slogan, direct advertising has been selected as the best in the industry by the Direct Mail Advertising Association. Capital keeps up its innovations and often meets with its readers, mailing post cards to prospective delegates just weeks before the gatherings and suggesting they travel by air. Meetings on the cards are kept in each classification. In the two months ended June 30 the carrier had a 147 percent increase in its number of the pieces of mail handled. It obtained 10,277 worth of business from 8,277 airmail of post cards.

New England Air Express—Is angling another plane to replace the DC-3 which recently made a forced landing on the beach of Great Harbor, Kittery Point, Maine, while en route from Teterboro, N. J., to Miami and San Juan, Puerto Rico, with 15 passengers.

Northwest—President Coal Hunter states that certification of Pan American Airways' routes will not be effected until NWA's plan for reorganizing overseas air mail by early October. NWA was informed by the mail last July by direct order of President Truman. NWA also was notified on the rate cut. For months.

Pan American—Has inaugurated Curaçao-Los Angeles service between Miami and San Juan. P. R. Passenger traffic on

PAA's Pacific-Alaska division passed 35 percent in the first six months of 1948 over the same period last year.

Pennair International—Reports flying 24,500,000 revenue passenger miles and 1,445,000 ton miles of mail and cargo during its first year of scheduled operation between New York and South America. Company and its completed 97.3 percent of all scheduled flights, of which 95.4 percent were on time or within 15 minutes of schedule.

Piedmont—President T. H. Davis states that profits during July, August and September equaled the first three months of 1947. Ansett's record in the first few months after regular power was re-introduced last February.

Philippines—With open service between Manila and Albany, N. Y., next month W. R. Williams has been named sales manager.

Transocean—Douglas F. Johnson has become vice president in charge of sales.

Western Airlines—Passenger volume increased 99 percent in the first eight months of this year over the same 1947 period.

Wireless Control—Has been offered a larger mail route by CAB for post and letter periods. Company is installing VHF communication equipment throughout its system. Steven G. Green Bay, Wis., was re-appointed the manager.

DARNELL CASTERS & E-Z ROLL WHEELS

Extra Value
ANY WAY YOU MEASURE IT

Maintain maximum employee efficiency — equip your hand trucks and other movable equipment with DARNELL Casters and Wheels—SAVE MONEY and eliminate that mid-afternoon "bogging down" of production.

CAB SCHEDULE

June 16—Starting in U.S. Airlines service over Florida, the first of 100 flights will be 100-Cast aluminum in Latin American in the nonstop class. (Docket 2115)

July 1—Starting on route of service of Western Air Lines route 12 (Docket 2115) a 100-Cast aluminum in Latin American in the nonstop class. Pan American Airways' Atlantic and Caribbean routes to South America. (Docket 2114)

Sept. 1—Second passenger contract is for 100-Cast aluminum in Latin American. (Docket 2115) et al.

Nov. 8—Platinum aluminum in passenger contract for Pan American Airways' Atlantic and Caribbean routes to South America. (Docket 2115) et al.

Nov. 15—Starting on Pan American airways' Caribbean and Central American routes to South America. (Docket 2115) et al.

Dec. 1—Starting on VHP routes to South America. (Docket 2115) et al.

Dec. 15—Starting on transoceanic passenger routes Transocean Air Lines (Docket 2115) et al.

Dec. 22—Starting on transoceanic passenger routes Pan American Airways (Docket 2115) et al.

Dec. 29—Starting on transoceanic passenger routes Pan American Airways (Docket 2115) et al.

June 16—Starting in transoceanic passenger routes Pan American Airways (Docket 2115) et al.



FREE
Manual

DARNELL CORP. LTD.
LONG BEACH 4, CALIFORNIA

88 MADISON ST., NEW YORK 12, N.Y.
11 N. CLINTON, CHICAGO 6, ILL.

The Magic of VHF

**Wireless Equipment for
Navigation, Communication
and Instrumentation**

The Type 12A VHF Navigation Equipment (Gyroscopic) is especially provided for navigation on the new Ocean-Electronic Routes as well as operation on both types of VHF Rimey Localizers, and the VHF Visual Direct Airways. Range finders, distance finders, beam finders and other accessories are available. The A.R.C. Receiver provides selection of any VHF service frequency.

The dependability and performance of the Type 12A VHF Navigation Equipment has increased safety to flight. Specify A.R.C. for your next installation.

Aircraft Radio Corporation
NEWARK, NEW JERSEY
SEPARABLE ELECTRONIC EQUIPMENT SINCE 1926



STRICTLY PERSONAL

A SIRATOCRUISHES AND YOU.—Al Hill's Boeing news bureau didn't tell us, but Boeing missed a golden opportunity the other day to donate the plane to end all planes on a radio spectrum there, a Siratocruiser.

Miss Blanca Goodson, carrying merchandise during the progress "Stop the Mine," extended the opportunity.

"You can put your expertise into our project and receive a description and an additional plug for you. For us other cost is to you for your expertise," the words Hervé Manfield, director of Bering public relations and advertising. "You will receive two basic expenses per program as long as our project holds out—expenses is until our new ministry entity is created. We can't say exactly how long this will be, but a reasonable estimate is five weeks. Five weeks—two meetings per show—the top rating participation shows in America is weeks in each format. The first two weeks will be for the preparation of the show.

Cad. Cleveland, advertising manager, replied that the winner might be a bit taken aback to find he had won a plane requiring a crew of five and a lot of storage space. He also doubted wisdom of giving away an engine worth \$1,000,000 in exchange for \$75,000 worth of advertising time.

BUT AMERICAN-C R. Smith was no more than a local president of Air Force Association when American Airlines influence began pressuring all the secret AA conventions. At the night session, before a packed Madison Square Garden, Bob Hope appeared, accompanied by Broadway star June Lockhart, who was in AA disguised as a girl. Hope speculated. Said she had to wear the AA suit or they would get a seat back in Hollywood. TWA and UAL representatives present let him get away with the plug.

SUMMINGTON DABES A SHORT TANGLE—We never got around to report much minute detail of the AFIA reservation. Secretary Syringham, former Indian trader, revealed dramatically that there had been one short and inconclusive battle in Washington, the newspaper hardly noticed. It was fought by the Air Force and the Quarantine Corps over the "secret order" of the Quarantine Corps. The newspaper reporter, who had been a member of the Air Force base scattered around the Commodore Hotel banquet hall, the Secretary of the Air Force pronounced proudly: "I can assure you that even the Press men here today is serving, while undercover."

SORRY, NO SARI—Joe Van Denburg, who was *Aviation News'* copy chief before he became McGraw-Hill's correspondent in India, thinks that Av-India International has dropped its plan to do its business in the flying Indian manner as an unprofitable idea. Even the most Indians were compelled to decide that five seats of inadequately damped planes didn't go well with flying at passenger at 10,000 ft. So the nippy short-haul outfit designed in conjunction with TWA as standard airline, forgoes.

BILLBOARD INKSPRINGS—Bob Leyden, founder of *Faxit* and now with Gladson Advertising Co., in Washington, says the other day ALPA's dismantling of one National Award was not unexpected. The pilot was just following the leading trend on "Don't Fly National Awards," a fine rule billboard he first wrote way back in 1974. The pilot got into the act because he was first writing "Don't" like most of us. The other pilot was on the board. (That's another story.) Leyden, a former *Billboard* publicity staff member, is a whirlwind three-month tournaiah which began at the *Antennae Writers Association*.

SIGHTS ABOUT PEOPLE—Fowler (Sam) Baker has returned to dance shows and is back at 7 Madison Avenue, Bronxville, N. Y. Thomas J. Deegan, formerly public relations chief for American Airlines, has been named president of the Federation of Railway Progress. He replaced Robert B. Young, who died in 1946 and was succeeded by Deegan. Deegan was formerly director of public relations for C. & O. later. John L. Fay, president of advertising manager of American Aviation, a new weekend general manager for Dayton Daily News. With Fay should remain aerobics. We hold a check for \$1,000 which All Lodwick made out over a year ago on behalf of Bayard. It reads: "Pay to the order of Harry Hodson, which he promises to shop around." Unfortunately, a repeated recitation of this a several times.

WHAT'S NEW

New Literature

"London Airport," published by British Information Services, 30 Rockefeller Plaza, New York 20, paper one-cent booklet which tells the story of the airport, and the airlines and seaplane which operate there. 40 pages, price 15 cents.

"Industrial Safety, Publications and Materials," a service guide issued by the National Safety Council, 20 N. Wacker Drive, Chicago, IL, contains illustrations and index of safety materials available to plants and personnel and cost of each.

"*Hycon Tubing Service*," Hycon bulletin containing information on seamless and welded carbon and stainless steel tubing and pipe, stainless tubing and stainless and welded boiler tubes. Available without charge from Joseph T. Ryman & Son, Inc., P.O. Box 2000-A, Chicago 40, Ill.

"Official Papers on Air Terminal Development, Finance and Services," papers delivered at the first meeting of the Airport Operators Council, this year in Boston. Statements from leading transportation officials. Board: 114-page, 10-cent paper available prepaid at \$1.75 from Airport Operators Council, 1631 K Street, N.W., Washington, D.C. 20006.

New Books

"High-Speed Aerodynamics," by Harold W. Silver, professor of aeronautical engineering at the University of Colorado. The text book for undergraduate aeronautics, 217 pages, including twelve pages of charts and tables. **Princeton-IBI, Inc.** 70 Fifth Avenue, New York 10011.

"*Airline Operation*," by R. Dean Spain, assistant to the vice president responsible for operations at American Airlines. Fifteen chapters, divided, cover the social aspects, airline organization, aircraft and engines in airline operations, operating costs and revenues, aircraft utilization and available equipment, fuel, flight dynamics of flight and performance, flight, climb and descent performance, main control methods for efficient operations, fuel load requirements, air plane weight and balance problems, aircraft maintenance and engineering, communications and meteorology, aircraft parts and services, passenger service, cargo operations. A list of questions at each chapter is included at the end of the book, for discussion. American Aviation Publications, 1025 Vermont

ADVERTISERS IN THIS ISSUE

ANALYSIS OF ESK—9070018 15, 1941

Who is not addled by Aladdin . . . we can prove our ability to produce the heat in perhaps

Confidentially, we don't use old "amps," we use the best equipment, backed up by skilled technicians and a 45 year experience record.



**Illustrated Above: The internal sphincter, external sphincter and gracilis muscle in a patient born with each other and connects with each other and with levator ani muscle within D3-L1.*



NEW and BETTER DRIVES for American Industry!

FOOTE BROS. MAXI-POWER PARALLEL SHAFT REDUCERS

This new line of Foote Bros. Maxi-Power parallel shaft enclosed helical gear drives offers American industry the maximum in high quality and rugged dependability.

The experience gained by Foote Bros. engineers in producing gears of almost laboratory precision is reflected in the high quality helical gears in this line of drives. The manufacturing experience of Foote Bros. dates back nearly a century, assuring industry the last word in power transmission equipment.

Foote Bros. Maxi-Power parallel shaft drives are available in single, double and triple reduction types in a wide range of sizes and ratios to meet practically any service need. An advance information sheet giving dimensions and ratios is available. Mail the coupon below for your copy.

Triple Reduction
Helical Gear Unit



Triple Reduction
Helical Gear Unit



Double Reduction
Helical Gear Unit



Single Reduction
Helical Gear Unit



Foote Bros. Gear and Machine Corporation
Dept. AVW, 4545 S. Western Blvd., Chicago 9, Ill.

Please send me information on dimensions and ratios for
Foote Bros. Maxi-Power Gear Drives.

Name

Company

Address

City State

FOOTE BROS.

Better Power Transmission Through Better Gears

FOOTE BROS. GEAR AND MACHINE CORPORATION
Dept. AVW, 4545 S. Western Blvd. • Chicago 9, Illinois